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Framing science: Climate Change in the Mainstream and Alternative News of New Zealand

Linda Jean Kenix

Abstract: The public learns about climate change through the media.

While mainstream media have been found to inadequately report on this issue in the United States, little research has examined how alternative media frame climate change, or how the mainstream press in other countries, are dealing with this important issue. In 2007, Professor Tim O’Riordan, the British Sustainability Commissioner and an advisor to British Prime Minister Tony Blair, gave a public speech arguing that climate change must be framed not as a sacrifice or a penalty but as an opportunity to benefit the future. Shortly after, Dr. Michael Nisbet and Chris Mooney wrote a much discussed article in *Science* that argued scientists must de-emphasize the ‘facts’ and focus more on ‘morality’ if important scientific problems are going to have any hope of abating. If such moralistic frames are to be found in the press, one might expect to see their presence initially in alternative outlets or in the mainstream press of countries that have a more receptive policy toward combating climate change. This research examines how *Scoop*, an independent news website based in New Zealand, and *The New Zealand Herald*, the most popular mainstream newspaper in New Zealand, framed the issue of climate change.

Keywords: climate change, framing, alternative media

Climate Change in NZ Mainstream & Alternative Press

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Climate change is arguably the most important issue of our time. If recent projections are correct, climate change could have catastrophic effects on the planet and its people in the relatively near future. As study of climate change increases and more scientific reports are released to the public through the media, questions arise as to how industry, government and society should respond. How these questions are asked in the media, may certainly play a large role in how they are eventually answered. After all, it is the framing of issues that expose who or what is the cause of a problem, what is the prognosis, and what actions need to be taken.¹ Over time, these frames, or 'organizing principles,...work symbolically to meaningfully structure the social world'.² This study proposes to examine how climate change is framed within the particular context of New Zealand.

Aotearoa, New Zealand is a signatory to the Kyoto Protocol. The Ministry of the Environment in New Zealand has advocated the settlement of a 100% renewable or carbon neutral energy goal; immediately reforesting unstable lands; and making bio-fuels available to all citizens.³ This is not to say that New Zealand is leading the world in abating climate change. The country is rated 12th in the world for per capita greenhouse gas emissions.⁴ However, the Prime Minister, Helen Clark, has said very publicly that New Zealand must strive for carbon neutrality and sustainability. In her 2007 statement to Parliament, she argued that 'the pride we take in our quest for

¹ Bert Klandermans and Sidney G. Tarrow, *International social movement research: A research annual. From structure to action: Comparing social movement research across cultures*, (Greenwich: JAI, 1988).

² Stephen D. Reese, Oscar H. Gandy Jr., and August E. Grant, *Framing Public Life*, (Mahwah: Lawrence Erlbaum, 2001).

³ David Parker, 'Cabinet Paper: Climate Change Policy - the Way Ahead', 2007, <http://www.mfe.govt.nz/issues/climate/resources/cabinet-papers/cab-06-188.html> (6 September 2007).

sustainability and carbon neutrality will define our nation, just as our quest for a nuclear free world has over the past twenty-three years. More than any other developed nation, New Zealand needs to go the extra mile to lower greenhouse gas emissions and increase sustainability'.⁵

As Prime Minister Clark alludes to in her address to Parliament, there are moral components to both the questions asked and the resolutions offered, in regards to climate change. In 2007, Tim O'Riordan gave a public speech in New Zealand titled, 'Not just communicating: How to share hard policy choices about climate change with the public'. O'Riordan suggested that New Zealand was poised to lead the global community in regards to climate change, given its historical roots in progressive social change and its international image as clean and green. In his role as a British Sustainability Commissioner and an advisor to the previous British Prime Minister Tony Blair on environmental issues, O'Riordan has had a unique perspective on the relationship between media, government and social change in relation to global warming. He argued that climate change must be framed not as a sacrifice or a penalty but as an opportunity to benefit the future.⁶ O'Riordan believes that only through such framing can the public consciousness on global warming shift. He argues that these 'reward' frames have already begun to be used in newspaper coverage of global warming around the world. .

⁴ 'New Zealand and Climate Change', 2007, <http://www.mfe.govt.nz/issues/climate/work-programmes/nz-climate-change.html> (6 September 2007).

⁵ Helen Clark, 'Prime Minister's Statement to Parliament', 2007, <http://www.beehive.govt.nz/ViewDocument.aspx?DocumentID=28357>, (19 September 2007).

⁶ Tim O'Riordan, 'Not just communicating: How to share hard policy choices about climate change with the public' Public Address, School of Political Science and Communication, University of Canterbury 22 March 2007.

Less than two weeks after Professor O’Riordan’s speech, Michael Nisbet, an Assistant Professor in the School of Communication at American University, and Chris Mooney, a correspondent for *Seed* magazine, published an article in *Science*, which discussed the framing of science reporting.⁷ The authors argued that scientists should ‘strategically avoid emphasizing the technical details of science when trying to defend it’,⁸ given that competing forces often stress moral frames in science coverage. The authors argued that the employment of moralistic frames from religious leaders and Republican officials in the United States has led to a lack of understanding on issues, such as climate change, embryonic stem cell use and evolution. It is this lack of understanding that led these authors to argue for public accountability, economic development and social progress frames to ‘engage broader support’.

This research uses the challenges of O’Riordan, Nisbet and Mooney as a platform to examine science frames of climate change in the alternative New Zealand news site of *Scoop* and the mainstream content from *The New Zealand Herald*. While mainstream media coverage of climate change in general has been found to be lacking, alternative media hold the promise of a different possibility. The alternative press are grounded in social critique that is principally in opposition to the mainstream press. This opposition allows for an ‘alternative communication’ that constructs different social orders, traditions, values and social understandings.⁹ Mainstream press are generally defined by their ubiquity and their corporate

⁷ Matthew Nisbet and Chris Mooney, 'Framing Science', *Science*, 6 April 2007.

⁸ Nisbet and Mooney, 'Framing Science', p. 56.

⁹ James Hamilton, 'Alternative media: Conceptual Difficulties, Critical Possibilities', *Journal of Communication Inquiry*, Vol. 24, No. 4, (2000), pp. 357-78.

ownership. Given the reach and circulation of mainstream media, they are a central component in constructing the social world that surrounds the people, events and places that we call reality.¹⁰ By comparing the alternative and mainstream press in this study, it is hoped that a broader understanding of different kinds of narratives might emerge. This research also hopes to better understand media frames of climate change in a country with a stated policy goal of carbon neutrality. The results from this study may indicate distinct differences between alternative and mainstream media that may be helpful in further theorizing the role of alternative media in society.

Framing Analysis

This research argues that media can play a powerful role in shaping ideology about political issues. However, this complex process is by no means direct or necessarily even clear. Scheufele¹¹ points out that the present stage of framing research, characterized by 'social constructivism', is defined by both strong and limited effects. On the one hand, mass media construct powerful images of reality for the public and on the other hand, the public draws upon these frames only to contextualize them against their own preexisting schemas. This results in a process whereby audiences depend on 'a version of reality built from personal experience, interaction with peers, and interpreted selections from the mass media'.¹²

¹⁰ Robert Stein, *Media Power* (Boston: Houghton Mifflin Company, 1972).

¹¹ Dietram A. Scheufele, 'Framing as a theory of media effects', *Journal of Communication*, Vol. 1, No. Winter, (1999), pp. 103-22.

¹² W. Russell Neuman, Marion R. Just, and Ann N. Crigler, *Common knowledge* (Chicago: University of Chicago Press, 1992).

News can provide information that plays a fundamental structural role in decision-making¹³ and can shape people's perceptions of that which they cannot experience directly.¹⁴ News, in particular, can function as an authoritative version of reality¹⁵ that specializes in 'orchestrating everyday consciousness—by virtue of their pervasiveness, their accessibility, their centralized symbolic capacity'.¹⁶ News frames can shape how the public interprets issues and events.¹⁷

While sometimes difficult to ascertain on an initial reading, frames purport to view an issue through a macro lens by examining the central theme of an issue. Frames have been defined as 'persistent patterns of cognition, interpretation, and presentation, of selection, emphasis, and exclusion, by which symbol-handlers routinely organize discourse'.¹⁹ Hertog and McLeod²⁰ state that 'the frame used [for interpretation] determines what available information is relevant'.²¹ This construction of power and relevance is integral in understanding the frame's significance and alludes to the assimilation of frames by the receiver. Consequently, the public's only

¹³ Oscar H. Gandy Jr., *'Beyond agenda setting: Information subsidies and public policy'*, (Norwood: Ablex, 1982).

¹⁴ Walter Lippmann, *'Public Opinion'*, (New York: Macmillan, 1921).

¹⁵ Bernadette Barker-Plummer, 'News as a political resource: Media strategies and political identity in the U.S. women's movement', *Critical Studies in Mass Communication*, Vol. 12, No. September, (1995): 306-24.

¹⁶ Gitlin, *'The whole world is watching: Mass media in the making and unmaking of the new left.'* 2.

¹⁷ Mira Sotirovic, 'Effects of media use on audience framing and support for welfare', *Mass Communication and Society*, Vol. 3, (2000): 269-97.

¹⁹ Gitlin, *'The whole world is watching: Mass media in the making and unmaking of the new left.'* 7.

²⁰ James Hertog and Douglas McLeod, 'Anarchists wreak havoc in downtown Minneapolis: A multi-level study of media coverage of radical protest', *Journalism Monographs*, Vol. 151, No. June, (1995): 1-48.

²¹ Hertog and McLeod, 'Anarchists wreak havoc in downtown Minneapolis: A multi-level study of media coverage of radical protest', 4.

understanding of social issues can often coalesce from a construction provided by media over time.²²

In further integrating public opinion and causality into the explication of framing, Entman²³ wrote that frames increase the salience of particular aspects of a story by promoting a specific 'problem definition, causal interpretation, moral evaluation and/or treatment recommendation for the item described'. Further, a frame 'suggests what the issue is'.²⁴ Perhaps synthesizing these conceptualizations into a single definition, Reese²⁵ states that 'frames are the organizing principles that are socially shared and persistent over time, that work symbolically to meaningfully structure the social world'. This cognitive dimension of an issues' attributes asks who or what is the cause of a problem, what is the prognosis, and what actions need to be taken.²⁶

Alternative Media and Climate Change

Unfortunately, no research examining how alternative media reports on climate change could be found. Indeed, the scholarly research dealing with

²² David Altheide, *Creating Reality: How TV Distorts Events* (Beverly Hills: Sage, 1976); William A. Gamson et al., 'Media images and the social construction of reality', *Annual Review of Sociology*, Vol. 18, (1992): 373-93; Gitlin, 'The whole world is watching: Mass media in the making and unmaking of the new left.'; Charlotte Ryan, Kevin M. Carragee, and Cassie Schwerner, 'Media, movements, and the quest for social justice', *Journal of Applied Communication Research*, Vol. 26, (1998): 165-81; Gaye Tuchman, *Making news: A study in the construction of reality* (New York: Free Press, 1978).

²³ Entman, 'Framing: Toward clarification of a fractured paradigm'. FULL REF?

²⁴ James W. Tankard Jr. et al., 'Media Frames: Approaches to Conceptualization and Measurement' (Paper presented at the Association for Education in Journalism and Mass Communication, Boston, 1991).

²⁵ Stephen D. Reese, Oscar H. Gandy Jr., and August E. Grant, *Framing Public Life* (Mahwah: Lawrence Erlbaum, 2001).

alternative media is remarkably slim. This may be because alternative media have been traditionally very hard to categorize.²⁷ One attempt at defining alternative media is as 'any media that are produced by noncommercial sources and attempt to transform existing social roles and routines by critiquing and challenging power structures'.²⁸ The existing social roles and routines that alternative media seek to critique generally stem from capitalism, consumerism, patriarchy, and the nature of corporations.

It is this foregrounding in social critique that has historically placed alternative media in diametric opposition to the mainstream press. Whereas the mainstream media have been traditionally viewed as maximizing audiences through conventional and formulaic stories, alternative media often advocate programs of social change through the framework of politicized social commentary.²⁹ Alternative media have the capacity for 'transforming spectators into active participants of everyday dealings and events affecting their lives'.³⁰ Indeed, alternative media often view their role as 'one of educating and mobilizing the 'masses' in the service of the cause or movement'.³¹ This research is grounded in the fundamental belief that alternative media can spur a type of alternative communication that does not occur through the

²⁶ Bert Klandermans and Sidney G. Tarrow, *International Social Movement Research: ARresearch Annual*.

²⁷ John Downing, 'Audiences and readers of alternative media: The absent lure of the virtually unknown,' *Media, Culture & Society*, Vol. 25, (2003), pp. 625-45.

²⁸ Joshua Atkinson, 'Analyzing resistance narratives at the North American Anarchist Gathering', *Journal of Communication Inquiry*, Vol. 30, No. 3, (2006), pp. 251-72, 252.

²⁹ David Armstrong, *A trumpet to arms: Alternative media in America*, (Boston: South End, 1981); Stephen Duncombe, *Notes from underground: Zines and the politics of alternative culture*, (London/New York: Verso, 1997).

³⁰ James F. Tracy, 'A historical case study of alternative news media and labor activism: The Dubuque Leader 1935-1939', *Journalism & Communication Monographs*, Vol. 8, No. 4, Winter, (2007), pp. 267-343, 272.

³¹ Hamilton, 'Alternative media: Conceptual difficulties, critical possibilities', p. 359.

mainstream press. These 'alternative communications' construct different social orders, traditions, values and social understandings.³² It has been argued that alternative media facilitates democratic participation and cultural disruption while the mainstream press avoids such social critique.³³ Downing³⁴ argues there is a complete mainstream blockage of public expression and therefore a necessity for alternative media to fill the cultural and social gap.

The New Zealand alternative publication, *Scoop*, claims to give voice to 'perspectives not being addressed through traditional media' It is independently owned and was started in 1999 by three individuals who had a goal of delivering unprocessed news under the banner of 'freedom, expression, ideas, information, empowerment, transformation'.³⁵ *Scoop* ascribes to basic tenets that define alternative media. The organization argues that it is 'unique, independent and necessary in NZ media...'³⁶ It is the leading independent news publication in New Zealand with averages of 450,000 – 500,000 unique readers a month.³⁷ On their website, *Scoop* is defined as specializing in 'aggregating raw, unedited material from national sources and international commentators while also producing its own in-depth editorial content on important issues – often giving voice to perspectives not being addressed through 'traditional media' sources'.³⁸

³² Hamilton, 'Alternative media: Conceptual difficulties, critical possibilities'.

³³ Daniel Makagon, 'Accidents should happen: Cultural disruption through alternative media', *Journal of Communication Inquiry*, Vol. 24, No. 4, (2000), pp. 430-47.

³⁴ John Downing, '*Radical media: Rebellious communication and social movements*', (Thousand Oaks: Sage Publications, 2001).

³⁵ '*Scoop's Mission*', 2007, <http://www.scoop.co.nz/about/mission.html>, (17 April 2007).

³⁶ '*Scoop's Mission*',

³⁷ '*Scoop's Mission*',

³⁸ '*Scoop's Mission*',

Due to its relatively small size, New Zealand does not have a large alternative media infrastructure. There are smaller alternative publications, but they are hard to obtain and harder still to examine over any length of time. Given that much of *Scoop's* content is an amalgamation of information from other, independent sources, it is presumed that content found in *Scoop* represents at least a portion of New Zealand alternative news. *Scoop's* readership is characterized by 'a discerning nature and a social conscience'.³⁹ This self-described, progressive readership would presumably be interested in information about reducing the effects of climate change.

Based on the foregoing, the following hypothesis will be tested:

H1: The alternative publication, *Scoop*, will emphasize morality in their coverage of climate change, more than the mainstream publication, *The New Zealand Herald*.

Mainstream Coverage of Climate Change

The mainstream newspaper, *The New Zealand Herald*, is read by an average of 530,000 people on a typical day.⁴⁰ It is, by far, the number one newspaper in New Zealand, with more than double the readership of any other daily newspaper in the country.⁴¹ Given that just over four million people live in New Zealand,⁴² *The New Zealand Herald* readership constitutes a substantial portion of the population. *The New Zealand Herald*, owned by APN News & Media, is self-described as the 'largest

³⁹ 'Scoop's Mission',

⁴⁰ 'Herald Readership', 2005, <http://www.nzherald.co.nz/info/advertising/print/ad-herald-circulation.cfm>, (13 October 2005).

⁴¹ 'The Print Edition', 2007, <http://info.nzherald.co.nz/advertising/print/>, (4 September 2007).

⁴² 'Rank order - population', 2005, <http://www.cia.gov/cia/publications/factbook/rankorder/2119rank.html>, (12 October 2005).

operator of regional newspapers, radio broadcasting and outdoor advertising in Australasia.⁴³

Given sheer circulation, the mainstream press have been found to be an integral source of knowledge about climate change.⁴⁴ The mainstream press are a central component in constructing the social world that surrounds the people, events and places that we call reality.⁴⁵ The public depend upon the media, especially in relation to environmental risks.⁴⁶ The media therefore have great power in democratic societies because of the dependence that the public places on them for necessary information.⁴⁷

It has been argued that mainstream New Zealand broadcast journalists have taken this responsibility seriously through a rhetoric of 'social responsibility to inform'.⁴⁸ This sense of responsibility is fueled by the 'populist discourse of 'relevance' which celebrates the common-sense thinking of 'ordinary New Zealanders'.⁴⁹ There is also a strong reliance on local reporting in New Zealand. Just under 80 percent of climate change articles in mainstream New Zealand newspapers have been written by New Zealand journalists.⁵⁰ Also, these journalists have

⁴³ 'APN News & Media', 2007, <http://www.apn.com.au/>, (17 October 2007).

⁴⁴ Kris M. Wilson, 'Mass media as sources of global warming knowledge', *Mass Communication Review*, Vol. 22, No. 1, (1995), pp. 75-89.

⁴⁵ Robert Stein, *Media Power*, (Boston: Houghton Mifflin Company, 1972).

⁴⁶ John A. Hannigan, *Environmental Sociology*, (New York: Routledge, 1995).

⁴⁷ Martin Gilens and Craig Hertzman, 'Corporate ownership and news bias: Newspaper coverage of the 1996 Telecommunications Act', *The Journal of Politics*, Vol. 62, No. 2, (2000), pp. 369-86.

⁴⁸ Pahmi Winter, 'The masters of truth and justice? News production at Television New Zealand Ltd. 1989-1992', *Australian Journalism Review*, Vol. 15, No. 1, (1993), pp. 17-28, 18.

⁴⁹ Winter, 'The masters of truth and justice? News production at Television New Zealand Ltd. 1989-1992', 19.

⁵⁰ Allan Bell, 'Media (mis)communication on the science of climate change', *Public Understanding of Science*, Vol. 3, (1994), pp. 259-75.

historically tended to draw upon a breadth of sources. Comrie⁵¹ found that New Zealand broadcast journalists depend on government sources as well as non-government officials with a relatively strong reliance on non-elite sources. Reporters in New Zealand have been said to readily take the position of mediators in public disputes and often conceptualize themselves as the 'voice of the public'.⁵²

Such positive portrayals of the New Zealand media must be balanced against international research, which has found that science coverage is confusing or outright inaccurate.⁵³ This is not to say that all coverage fits this description as there are certainly outlets providing excellent coverage. However, the lack of quality in science journalism that has been found is due to inadequate science education among journalists;⁵⁴ a lack of communication between journalists and scientists;⁵⁵ a presumed scientific illiteracy among the public that leads to simpler scientific reporting; a bias within corporate media against science that may be harmful to 'big business';⁵⁶ and the simple fact that science stories tend to be outside of standard journalistic norms dictating what makes the news.⁵⁷

⁵¹ Margie Comrie, 'Television news and broadcast deregulation in New Zealand', *Journal of Communication*, Vol. 49, No. 2, Spring, (1999), pp. 42-54.

⁵² Verica Rupar, 'Reflections on journalism and objectivity: An episode, ideal or obstacle', *New Zealand Journal of Media Studies*, Vol. 9, No. 2, (2006), pp. 12-17.

⁵³ Rosslyn Reed, 'From 'gee whizz' to 'shock-horror': The limited frameworks of science journalism', *Australian Journal of Communication*, Vol. 29, No. 3, (2002), pp. 43-58.

⁵⁴ Kris M. Wilson, 'Drought, debate, and uncertainty: Measuring reporters' knowledge and ignorance about climate change', *Public Understanding of Science*, Vol. 9, (2000), pp. 1-13.

⁵⁵ Bell, 'Media (mis)communication on the science of climate change'; Rosslyn Reed, '(Un-)professional discourse?' *Journalism*, Vol. 2, No. 3, December, (2001), pp. 279-98.

⁵⁶ Moti Nissani, 'Media coverage of the greenhouse effect', *Population and Environment*, Vol. 21, No. 1, (1999), pp. 27-44.

⁵⁷ Anders Hansen, 'Journalistic practices and science reporting in the British press', *Public Understanding of Science*, Vol. 3, (1994), pp. 111-34.

While most science stories are episodic and center on specific events or breakthroughs,⁵⁸ climate change has had a steady presence in mainstream media. That being said, much of the coverage found in the mainstream press has been sensationalistic,⁵⁹ focusing on extreme predictions rather than a conceptual understanding as to the causes of climate change. Because of this, public knowledge about climate change is often inaccurate or confused.⁶⁰ Based on the foregoing, the following hypotheses are proposed:

H2: The mainstream *New Zealand Herald* will emphasize sensationalism in their coverage of climate change, more than the alternative publication, *Scoop*.

H3: The mainstream *New Zealand Herald* will emphasize the consequences of climate change in their coverage, more than the alternative publication, *Scoop*.

Adding to the confusion is the continued news reliance on conflict and controversy. The overwhelming majority of news reports about climate change continue to report on a supposed scientific debate surrounding the causes of climate change. One 'side' inevitably argues that climate change has been brought about by human activity while the other 'side' maintains that this is a natural phenomenon.⁶¹ This conflict frame persists in the media even though there is increasing agreement among the scientific community that recent, dangerous climate change is caused by

⁵⁸ Hansen, 'Journalistic Practices and Science Reporting in the British Press'.

⁵⁹ Simon Cox and Richard Vadon, 'A load of hot air?' 2006, http://news.bbc.co.uk/2/hi/uk_news/magazine/4923504.stm, (13 April 2007).

⁶⁰ Willett Kempton, James S. Boster, and J. Hartley, *Environmental Values in American Culture* (Cambridge: MIT Press, 1995).

⁶¹ David Helvarg, *The War Against the Greens* (San Francisco: Sierra Club, 1994); Wilson, 'Drought, Debate, and Uncertainty: Measuring reporters' knowledge and ignorance about climate change'.

humans.⁶² Wilson⁶³ argues that the journalistic routine of achieving balance within a story is the cause of such coverage. While there are rare recent exceptions to this style of coverage, most notably found in the United Kingdom,⁶⁴ climate change coverage still largely follows this 'balanced' approach. Based on the preceding information, the following hypothesis is proposed:

H4: The mainstream *New Zealand Herald* will emphasize scientific debate in their coverage of climate change, more than the alternative publication, *Scoop*.

The sources that journalists rely upon for climate change coverage has also influenced resulting content in mainstream media. This reliance on individuals and institutions that traditionally hold power in society can have a profound impact on resulting coverage in that they may control the discourse on possible solutions. Trumbo⁶⁵ found that politicians and interest groups, rather than scientists, are often sourced as experts in stories about climate change. This finding was replicated by Brossard et. al.⁶⁶ who found that the mainstream *New York Times* relied on industry representatives, government officials and business sources in its coverage of climate change. Using their coding instrument for sources as a baseline in this study, the following hypotheses will be tested:

H5: The mainstream *New Zealand Herald* will use business groups and government representatives in their coverage of climate change, more than the alternative publication, *Scoop*.

⁶² 'Climate Change 2007', 2007, <http://www.ipcc.ch>, (12 April 2007); Naomi Oreskes, 'The scientific consensus on climate change', *Science* 2004.

⁶³ Wilson, 'Drought, debate, and uncertainty: Measuring reporters' knowledge and ignorance about climate change'.

⁶⁴ Elini Andreadis and Joe Smith, 'Beyond the ozone layer', *British Journalism Review*, Vol. 18, No. 1, March, (2007): 50-56.

⁶⁵ Craig Trumbo, 'Constructing climate change: Claims and frames in US news coverage of an environmental issue', *Public Understanding of Science*, Vol. 5, (1996): 269-83.

⁶⁶ Brossard, Shanahan, and McComas, 'Are issue-cycles culturally constructed? A comparison of French and American coverage of global climate change'.

H6: The mainstream *New Zealand Herald* will emphasize domestic politics and international relations in their coverage of climate change, more than the alternative publication, *Scoop*.

Scientific journalism in the mass media about climate change also avoids any discussion of values or political and economic choices⁶⁷ and continues to focus on technical details in the mainstream press.⁶⁸ This void in coverage persists even though climate change is undoubtedly accelerated by choices 'embedded in socioeconomic structures and value systems'.⁶⁹ Based on the foregoing, the final research question is:

H7: The mainstream *New Zealand Herald* will emphasize new scientific research and scientific technology in their coverage of climate change, more than the alternative publication, *Scoop*.

Methodology

This research follows a deductive approach by first defining the frames to search for and then proceeding with a comprehensive examination. While a drawback to this method is that one may not discover all the frames present, these studies can be easily replicated and can detect subtle differences between media.⁷⁰ The research depends on frequencies, percentages, and independent-samples t-tests to examine results from the content analysis. After this quantitative stage, a qualitative discourse and narrative analyses was also used to help address the

⁶⁷ Lee Wilkins, 'Between facts and values: Print media coverage of the greenhouse effect, 1987-1990', *Public Understanding of Science*, Vol. 2, No. 1, (1993), pp. 71-84.

⁶⁸ Nisbet and Mooney, 'Framing Science'.

⁶⁹ Craig Trumbo and James Shanahan, 'Social research on climate change: Where we have been, where we are, and where we might go', *Public Understanding of Science*, Vol. 9, No. 3, (2000), pp. 199-204, 200.

⁷⁰ Holli A. Semetko and Patti M. Valkenburg, 'Framing European politics: A content analysis of press and television news', *Journal of Communication*, Vol. 50, No. 2, (2000), pp. 93-109.

seven research questions at hand. When applicable, specific strategies of signification⁷¹ were identified in news content. As Foucault⁷² argued, discourses are inevitably not about a particular person, place or thing. Rather, discourses are part of a complex network of identity and power relations. This research engages in a critical discourse analysis to understand: the language used; in whose interests; and with what possible effects in society?⁷³

Narrative analyses involve a systematic process and examination of lexical choices through strategies of signification. In doing so, this research questions the range of possible vocabulary items that could have been utilized otherwise.⁷⁴ Given that mainstream media has been found to report on climate change in very specific ways, this research questions what alternative discourses could have been utilized by *Scoop* and *The New Zealand Herald*. As Hodge and Kress⁷⁵ argue, the use of terms such as 'freedom fighter' rather than 'terrorist', for example, demonstrates how social forces engage the text. Within any news text, there are limitless linguistic options available for description. Yet, some are chosen more than others.⁷⁶ These discursive approaches are used, presumably, for a news outlet to relate better to

⁷¹ Ananda Mitra and Elisa Cohen, 'Analyzing the web: Directions and Challenges', in Steve Jones (ed.), *Virtual culture: identity and communication in cybersociety* (Thousand Oaks: Sage, 1999).

⁷² Michel Foucault, *The archaeology of knowledge*, (London: Routledge, 1989); Michel Foucault, *Discipline and Punish: The birth of the prison*, (Harmondsworth: Penguin, 1991).

⁷³ Donald Matheson, *Media discourses: Analysing media texts*, (Berkshire: Open University Press, 2005).

⁷⁴ Matheson, *Media discourses: Analysing media texts*.

⁷⁵ Robert Hodge and Gunther Kress, *Language as Ideology*, (London: Routledge, 1993).

⁷⁶ Gunther Kress, 'Linguistic and ideological transformations in news reporting', in Howard Davis and Paul Walton (ed.), *Language, Image, Media* (Oxford: Basil Blackwell, 1983).

their audience.⁷⁷ Therefore, they are instructive in analyzing how *Scoop* and *The New Zealand Herald* conceptualize their readers.

This study examines 2006 and 2007 as a current benchmark of environmental reporting. In drawing from this time period, which includes the release of Al Gore's popular documentary *An Inconvenient Truth*, it is presumed that there will be a wide range of coverage to examine. A Google-driven *Scoop* Media search of the key term 'climate change' resulted in 25,800 articles. The search engine returned the most 'relevant' 170 articles. Fifty articles were randomly selected by choosing every fourth article for analysis ($170/50 = 3.4$, rounding up to 4). If that article was not appropriate because it clearly did not pertain to climate change, then it was not included and the article immediately after it on the list was included for analysis and the count continued from there. A Factiva search was done for all *New Zealand Herald* articles during the same time period. This search returned 280 articles. Every sixth article was included for this study ($280/50 = 5.6$, rounding up to 6). The article was the unit of analysis.

This study drew from the original work of McComas and Shanahan,⁷⁸ which was replicated in the work of Brossard et. al.⁷⁹ in their own examination of climate change. The following frames were coded in the *New Zealand Herald* and *Scoop*: new evidence or research presented; scientific background of climate change ('known' findings); consequences, which includes predictions; economics of potential

⁷⁷ Danuta Reah, *The language of newspapers* (London: Routledge, 2002).

⁷⁸ Katherine McComas and James Shanahan, 'Telling stories about climate change: Measuring the impact of Narratives on Issue Cycles', *Communication Research*, Vol. 26, No. 1, (1999), pp. 30-57.

⁷⁹ Brossard, Shanahan, and McComas, 'Are issue-cycles culturally constructed? A comparison of French and American coverage of global climate change'.

solutions; domestic politics; international relations; and current weather. Added to this list, this study also coded for the presence of the following frames:

sensationalism, conflict and morality (see Table 1). All frames were coded as (0) not present, (1) present or (2) outstanding focus, or appearing in the lead.

This study also used the coding instrument developed by Brossard et. al.⁸⁰ to measure sources. This research recorded each assertion, quotation, or named source and coded that source as either an academic/university professor, researcher, or scientist; resident/citizen 'on the street' (i.e. non-expert interview); business/industry group; economist; unnamed experts or officials; unaffiliated or independent research group; governmental sources; or environmental group. Each source was coded as (0) not present or (1) present. Variability of viewpoints was measured by counting the number of sources mentioned in each article (minimum = 0, maximum = 6, $M = 2.0$, $SD = 1.9$) The author and one other coder were used to code content for this study to increase the reliability of the results. The coder was trained in understanding and detecting the coding categories.

Results

Frames

The coder was asked to code an initial 30 articles. During that period, the author of this study and the coder met frequently to discuss any questions. There was also a more formalized meeting after the first 30 articles were coded. The coding categories were again discussed at this stage and any remaining questions were dealt with. This discussion served to enhance greater uniformity in coding. The

⁸⁰ Brossard, Shanahan, and McComas, 'Are issue-cycles culturally constructed? A comparison of French and American coverage of global climate change'.

initial sub-sample of 30 articles (15 from each publication) was measured using Scott's pi, a common measure that accounts for chance agreement. The average inter-coder reliability for the first sub-sample of 30 articles was .76 for frames and .87 for sources cited. The Scott's pi inter-coder reliability measure for the full 100 articles was .79 for frames and .87 for sources cited. There is no fundamental baseline standard for inter-coder reliability, however there have been suggestions of a minimum bound of .70⁸¹ or .75.⁸² The resulting inter-coder reliability measures here of .79 and .87 surpass both of these benchmarks and suggest that the coding scheme was reliable.

Eighty-six percent of all news articles never used morality in framing the issue of climate change. Only one article, found in *Scoop*, emphasized morality as the outstanding focus. Eight other articles in *Scoop*, out of 50 articles sampled, used morality in the framing of climate change. Only five articles were found to mention climate change as a moral issue in *The New Zealand Herald*. An independent-samples t-test was conducted to compare the morality scores for *The New Zealand Herald* and *Scoop*. There was no significant difference in mean scores for *The New Zealand Herald* ($M=.1$, $SD=.303$) and *Scoop* [$M=.2$, $SD=.452$; $t(98)=1.30$, $p=.197$] (Table 2).

Such a small use of morality framing in all content suggests that coverage of climate change has not changed to the degree that O'Riordan, Nisbet and Mooney would have hoped. However, when used, it may have been effective if only in it's

⁸¹ Michael W. Singletary, *Mass communication research: Contemporary methods and applications*, (White Plains: Longman, 1994).

⁸² Roger D. Wimmer and Joseph R. Dominick, *Mass media research*, 5th ed. (Belmont: Wadsworth, 1997).

point of departure from most content. In one of the clearest examples of the morality frame, *Scoop* reported that Ariana Emery, the Youth MP for Te Tai Hauauru said 'If we love our country, why are we destroying it?'⁸³ The MP goes on to say that 'in the old days they did not need to be reminded, they lived it...you cared for the land and in return the land cared for you...showing respect today will pay generous dividends for tomorrow'. This emotional appeal is threaded throughout the entire article. She draws from the supposed actions of those in 'the old days' to illustrate how modern day citizens of New Zealand are losing moral ground. In connecting the behavior of our ancestors with the future for our children, Emery makes a definitive moral statement that was rarely seen in this sample.

Another example comes from Peter Neilson, the Business Council's Chief Executive who said, 'our extensive nationwide research shows New Zealanders are willing to help tackle climate change. They need to be given that opportunity. The benefits will be considerable. Done right we will have cleaner air, secure long term energy and water supplies, cleaner air and lower fuel bills from safer cars, and new research-based products and services, which lower emissions and improve energy efficiency, for sale to the world' (*Scoop*, 20 Dec 2006). This quote illustrates an intertextual mix of populist lexical choices.⁸⁴ In this example, Neilson is speaking for all New Zealanders while still maintaining his legitimacy as an official in our society. He is quoting from his own 'extensive nationwide research', which places him above the average citizen who would likely not have the means to conduct a similar poll. This quote mixes informational news with persuasion and conjures up a passive,

⁸³ 'Climate change - Ariana Emery Youth MP', *Scoop*, 11 July 2007.

immobilized populace that simply wants to do the 'right' thing for themselves and for their country. He aligns himself with that populace while dictating what the specific outcomes will be, such as cleaner air and secure long-term energy, rather than other possible outcomes, such as global cooperation or less reliance on automobiles.

Simon Oosterman, from the Auckland World Naked Bike Ride, is quoted as saying, 'we should be encouraging, not penalizing, individuals who choose to highlight the available solutions to climate change'.⁸⁵ By invoking the word 'we', this statement again places the source inside a bond between the readers, the government and himself. He is speaking for all three when he uses the term 'we'. However, it should be made clear that he isn't offering a definitive reward. Rather, he is stating, 'we *should* be encouraging' and not alternatively stating, 'we *will* be encouraging'. This reflects that he is actually not an integral part of the triumvirate bond first imagined between himself, the government and the readers. He remains outside of that bond and is morally hopeful of a reward, rather than providing one.

Despite these examples of morality in content, there was very little evidence of this frame overall. The magnitude of the differences between the means that was found was very small ($\eta^2 = .016$), which meant that only 1.6 percent of variance in morality was explained by publication source. Therefore, Hypothesis 1, which stated that the alternative publication, *Scoop*, will emphasize morality in their coverage of climate change, more than the mainstream publication, *The New Zealand Herald*, was rejected.

⁸⁴ Norm Fairclough, *Analysing discourse: Textual analysis for social research*, (London: Routledge, 2003).

⁸⁵ 'Protest: last chance for youth rates bill', *Scoop*, 11 August 2007.

Eighteen percent of content in *Scoop* reported climate change as a sensationalistic issue. Four percent of total *Scoop* content relied on sensationalism as the main focus. Twelve percent of content in *The New Zealand Herald* emphasized sensationalism in their coverage of climate change. One such example, examines the situation for Tuvalu's nine low-lying coral atolls, none of which are more than 4 meters above sea level. Dr. Iftikhar Ayaz, the honorary consul for Tuvalu in London, is quoted as saying 'Tuvalu could be underwater as soon as 2040 or 2050...we are not talking about science fiction or hypothetical ideas...it is happening to us'.⁸⁶ In drawing from such a dire situation that confronts Tuvalu, the text constructs a riveting and direct dichotomy between the behaviors of the world and the resulting catastrophe to befall the people of Tuvalu. Only the immediate actions of the reader will stop the 10,000 Tuvalu inhabitants from drowning.

It is these gaps in coverage that make such dire predictions and extreme cautions have that much more impact. Such a limited range of information inevitably leads to rash, uninformed decision-making and understanding. For example, many of the weather events were described as 'extreme'. Such an approach is sensationalistic not just in its discursive usage of the word 'extreme' but also in the absence of any historical evidence to support that statement. A *Scoop* article from the 12th of September says that 'our generation is witnessing the early stirrings of extreme weather events, melting ice and other climatic manifestations'.⁸⁷ However, the article never states what those events are or how much ice has melted or what specific climatic manifestations are occurring. The reader is left to anxiously piece

⁸⁶ 'Britain plea to stop atolls sinking into Pacific', *The New Zealand Herald*, 17 June 2007.

⁸⁷ 'Global campaign tackling climate change', *Scoop*, 12 September 2007.

together these sensationalistic nodes of information that exponentially increase in their notoriety with each unexplained assertion.

However, the independent-sample t-test found no significant difference in mean scores for sensationalism between *Scoop* ($M=.22$, $SD=.507$) and *The New Zealand Herald* [$M=.14$, $SD=.405$; $t(98)=.872$, $p=.385$]. The magnitude of the differences in the means was extremely small ($\eta^2=.007$), meaning only .7 percent of variance in sensationalism was explained by publication source. Hypothesis 2, which stated that the mainstream *New Zealand Herald* will emphasize sensationalism in their coverage of climate change, more than the alternative publication, *Scoop*, was rejected.

Thirty-eight percent of newspaper articles emphasized the consequences of climate change in coverage. Consequences were relied on as an outstanding focus in *Scoop* slightly less (8 percent) than *The New Zealand Herald* (12 percent). However, the overall use of consequences in telling stories about climate change was equal with 19 articles from both publications, totaling 38 articles, emphasizing the consequences to climate change to some degree. This relatively high usage of the consequence frame was equal across publications. Thus, there was no significant difference in mean scores for *The New Zealand Herald* ($M=.50$, $SD=.707$) and *Scoop* [$M=.46$, $SD=.646$; $t(98)=-.295$, $p=.768$]. However, the magnitude of the differences in the means was extremely small ($\eta^2=.0008$). Hypothesis 3, which stated that the mainstream *New Zealand Herald* will emphasize the consequences of climate change in their coverage, more than the alternative publication, *Scoop*, was rejected.

While there was no significant difference between publications, examples of a dire future predicted in overall news content were plentiful. On the 8th of February in 2007, *Scoop* reported, 'the increase of temperature by 1.8 to 4 degrees Celsius this century, projected in the IPCC report, will make hot extremes, heat waves and heavy rainfall, more frequent'. Again, warnings in *Scoop* argued that 'many millions more people are projected to be flooded every year due to sea level rise by the 2080s' (*Scoop* 7 April 2007).

Scoop, relied on the public's fear of a potentially grim future. Salvano Briceno, Director of the UN International Strategy for Disaster Reduction warned, 'we face a serious challenge...to avoid the worst-case scenario' (*Scoop*, 8 February 2007). This 'worst-case scenario' would undoubtedly befall us unless we changed our behavior immediately. As Greenpeace campaigner, Robbie Keman argued, 'avoiding action now to tackle climate change is delaying the inevitable' (*Scoop*, 30 April 2002). Professor Fitzharris, from University of Otago, is quoted as saying, 'eventually adaptation (to climate change) will be insufficient to reduce vulnerability' (*Scoop* 7 April 2007). In this case, the dire consequences threatened are sure to occur as there is no hope of a solution. This foreboding future could cut across all geographical sections of New Zealand with multiple ramifications: 'Parts of New Zealand will get warmer but parts will also get wetter...Snowlines will rise and westerly winds will be 20 percent stronger. Severe droughts are likely to occur up to four times as often, but heavy rain will be more frequent'.⁸⁸

⁸⁸ 'New studies have confirmed that climate change is likely to bring New Zealand IN THERE SOMETHING MISSING.' *The New Zealand Herald*, 11 July 2007.

It can be argued that such tales of potential consequences are necessary to inform readers of climate change's effects. But, these fatalistic warnings were never coupled with any morality frames in content. This important omission could potentially leave readers frustrated, confused and afraid of the future without any perceived ability to enact change.

Very little content framed climate change as a scientific issue still under debate. Eight percent of *Scoop* content mentioned that there was still debate as to the causes of climate change as opposed to 10 percent of *The New Zealand Herald*. This added up to only 9 percent of all content suggesting that the causes of climate change were still unclear. There was no significant difference in mean scores for conflict in coverage between *The New Zealand Herald* ($M=.12$, $SD=.385$) and *Scoop* [$M=.06$, $SD=.240$; $t(98)=-.934$, $p=.352$]. The magnitude of the differences in the means was extremely small (eta squared=.008). The fourth hypothesis, which stated that the mainstream *New Zealand Herald* will emphasize scientific debate in their coverage of climate change, more than the alternative publication, *Scoop*, was rejected.

It is interesting to note that when climate change was framed as a debate still in conflict, those that believed climate change was 'dangerous unscientific nonsense'⁸⁹ were largely marginalized. One article in *The New Zealand Herald* repeatedly referred to detractors of climate change as those embedded in the 'denial machine', defined as 'think tanks linking up with like-minded, contrarian researchers'.⁹⁰ The rhetorical use of 'denial machine' implicitly defines detractors as

⁸⁹ 'IPCC report slammed as "dangerous nonsense"', *Scoop*, 10 April 2007.

⁹⁰ 'Climate change denial cranks up', *The New Zealand Herald*, 11 August 2007.

those who are only interested in denying the existence of climate change because they must perform as some sort of cog in a larger wheel. In using the word 'machine', these detractors are exposed as someone, or something, other than us as the readers. Their role within the 'machine' is solely to contribute to their 'side' and not to base their position on any rational or emotional thought – two characteristics that separate humans from machinery. Further labeling these researchers as contrarian suggests that even if faced with reasonable evidence, such individuals would not shift in opinion. Again, this lack of rationale distances these detractors from the readers' position.

Sources

Academic sources were found in 19 percent of articles. *The New Zealand Herald* relied on academic sources slightly more (11 articles, $M=.22$, $SD=.418$) than *Scoop* (8 articles, $M=.16$, $SD=.370$). Resident citizens were rarely used in content. Only 5 percent of articles used a resident citizen as a source. *The New Zealand Herald* used citizen sources in 4 articles ($M=.08$, $SD=.274$) and *Scoop* relied on citizen sources only in one article ($M=.02$, $SD=.141$). An economist was only sourced once in a *New Zealand Herald* article. Unnamed sources were found in 12 percent of content. *The New Zealand Herald* was three times more likely (9 articles, $M=.18$, $SD=.388$) than *Scoop* (3 articles, $M=.06$, $SD=.240$, $t(98)=-1.86$, $p=.066$) to use such a source. The magnitude of the differences in the means was small ($\eta^2=.03$). Independent or unaffiliated research sources were only used in 3 percent of total content. *Scoop* relied on environmental groups almost four times as much (11 articles, $M=.22$, $SD=.418$) as *The New Zealand Herald* [3 articles, $M=.06$,

$SD=.240$, $t(98)=2.34$, $p=.021$]. The magnitude of the differences in the means remained small ($\eta^2=.05$). Overall, *The New Zealand Herald* relied on a variety of sources ($M=2.46$, $SD=2.40$) more than *Scoop* ($M=1.53$, $SD=1.02$).

There was a significant difference between mean scores of business groups as sources and the publication outlet [$t(98)=-2.578$, $p=.011$] with the magnitude of the differences in the means as small ($\eta^2=.06$). Business representatives and industry sources were found in 15 percent of content, although *The New Zealand Herald* was four times more likely to rely on these sources (12 articles, $M=.24$, $SD=.431$) than *Scoop* (3 articles, $M=.06$, $SD=.240$).

There was not a significant relationship between mean scores of government representatives as sources and the publication outlet [$t(98)=-.000$, $p=1.00$].

Governmental sources were, by far, the most sourced group and were found in an identical 28 percent of content from both *The New Zealand Herald* ($M=.56$, $SD=.501$) and *Scoop* ($M=.56$, $SD=.501$). Overall, 56 percent of articles relied on a governmental source. Governmental debate, heavily emphasized in *Scoop*, can clearly be seen in a 2006 article titled, 'MPs now aligned on climate change policy'. The article focuses on debates to reach a 'multi-party agreement' and discussion to organize a 'multi-party conference on climate change policy'. The Business Council's Chief Executive, however, ultimately thinks the debate will involve 'lots of discussion, and possibly disagreement, on the details. That's to be admired as a healthy thing'.⁹¹ This exemplifies how governmental conflict and governmental sources are to be

⁹¹ 'MPs now aligned on climate change policy', *Scoop*, 20 December 2006.

venerated as a natural and 'healthy' part of the democratic process – even when the severity and weight of an issue, such as climate change, is dramatically clear.

These findings suggest that the fifth hypothesis can be only partially supported. It was found that *The New Zealand Herald* used business groups as sources statistically more than *Scoop*. However, *Scoop* and *The New Zealand Herald* relied on governmental sources equally.

Narratives of climate change were told through the framework of domestic politics in 38 percent of articles. The split between *The New Zealand Herald* and *Scoop* was even with 19 articles in each publication relying on this frame. International relations were also emphasized a great deal in content. Forty-three percent of content relied on this frame. Within this percentage, 23 *Scoop* articles ($M=.72$, $SD=.858$) and 20 *New Zealand Herald* articles ($M=.64$, $SD=.851$) relied on international relations as a framework for climate change. There was not a significant relationship between mean scores of domestic politics [$t(98)=-.356$, $p=.723$, eta squared = .001] or international relations [$t(98)=.468$, $p=.641$, eta squared = .002] and the publication outlet.

The United Nations was a central focus in international coverage. An 8 February 2007 publication stated: 'seeking to counter the potentially catastrophic impact of global warming, a United Nations body...called on Governments to speed up implementation of a two-year-old accord to reduce the risks facing millions of people exposed to climate-caused calamities'. Hypothesis six, which stated that the mainstream *New Zealand Herald* will emphasize domestic politics and international relations in their coverage of climate change, more than the alternative publication, *Scoop*, was rejected.

New scientific evidence was presented in 24 percent of content. *Scoop* relied on this evidence slightly more (13 articles) than *The New Zealand Herald* (11 articles). Although, 10 of the 13 articles in which *Scoop* relied on this frame were through an outstanding focus. The scientific background of climate change was found in 30 percent of content. *The New Zealand Herald* ($M=.38$, $SD=.490$) relied on this frame more than *Scoop* ($M=.22$, $SD=.418$). There was not a significant relationship between either the mean scores of new scientific evidence [$t(98)=-.650$, $p=.517$, eta squared = .004] or scientific background information [$t(98)=-1.75$, $p=.082$, eta squared = .03] with publication source. Therefore, Hypothesis 7, which stated that the mainstream *New Zealand Herald* will emphasize new scientific evidence and scientific research in their coverage of climate change, more than the alternative publication, *Scoop*, was rejected.

When explanations were given, they were brief. One article read, 'aerial gridlock contributes a whopping 10% of the world's global warming, poisons the atmosphere and destroys the ozone layer' (*Scoop*, 1 August 2006). The reader does not know what causes the additional 90% of global warming and also is left wondering what effect this global warming will have on their own lives. Another example from *Scoop* states, 'transport is a major contributor to our national increase in greenhouse emissions. 40% of New Zealand's CO₂ emissions are transport related' (*Scoop*, 17 Feb 2005). Again, what makes the remaining 60% of CO₂ emissions is left unknown.

Discussion

Professor Tim O’Riordan has argued that climate change must be framed not as a sacrifice or a penalty but as an opportunity to benefit the future.⁹² O’Riordan contends that only through such framing can the public consciousness on global warming shift. Nisbet and Mooney⁹³ have agreed in their position that scientific reporting must move toward moralistic frames if society is to begin making fundamental changes. Unfortunately, very little of the content sampled here found evidence of these frames. However, it is important to note that some of the earlier claims of sensationalistic scientific journalism were not reproduced in this study. This may suggest, at least in New Zealand, that there has been a shift away from overt scare tactics. Yet, the relatively heavy emphasis on the consequences of global warming, whether they be portrayed sensationalistically or not, coupled with a lack of attention to values and moral decision-making, would presumably leave readers with the uneasy fear of future consequences and little in the way of modeling for personal changes.

Organizational values that previously were thought to have a purposeful force in the newsroom may not be as powerful over an extended period of time. It may also be that universal, global issues have dictated a universal, global response in terms of journalism norms. Clearly, further research is needed to better understand the forces that created the similar coverage found in this study.

These findings also suggest that the political position of a nation may have very little impact on newspaper coverage. It was hypothesized here that if moralistic coverage were to be found, it may be more likely in a country such as New Zealand

⁹² Tim O’Riordan, ‘Not just communicating: How to share hard policy choices about climate change with the public’

that has a stated goal of carbon neutrality. A larger, multinational study would help clarify whether there is indeed a difference between content in New Zealand and other countries, which have different political positions on the issue of climate change. The mainstream media in New Zealand did rely on business sources more than the alternative publication, *Scoop*, but otherwise both mainstream and alternative content was not found to be sensationalistic or focused on potential debates surrounding the cause of global warming. These two main findings from previous research done in the United States suggests that the country of origin may indeed play a strong role in dictating coverage of climate change and that previous theories suggesting universal journalism values may not be accurate. Again, more study that examined a multitude of countries on this issue would be illuminating.

While it has been noted before, it is also important to temper these conclusions against the limitations of a relatively small sample size. This was not an exhaustive review of all media content in New Zealand and conclusions need to be considered as reflective of only the sample examined. The conclusions themselves must also be considered within the definitional limitations of the frames examined (See Table One). Many of the frames examined here, such as morality, sensationalism, and conflict, could have been approached from several different perspectives. Indeed, this study was confined to a definitional framework for both simplicity and for clarity in the results. However, it could be argued that this sample may have had different results had the operationalization of frames been different. Finally, this study was an examination of narrative and not of the impact that these

⁹³ Nisbet and Mooney, 'Framing Science'.

narratives may have on society. This research offered possible readings of the frames found, but these interpretations can not be considered conclusive until further study is completed.

Despite these limitations, an intriguing finding of this study was that there was no suggestion of any difference between the alternative and mainstream press. While a clear limitation to this study was the small sample size, such nascent findings are disturbing for those examining the differences between alternative and mainstream media and those pushing for changes in climate change coverage. One possible conclusion is that journalistic norms have become so pervasive that alternative media are quick to follow the same patterns of coverage. One of the principle points of opposition against the present media merger frenzy, is the fear that a monolithic media will create content that is one-dimensional. This is based on the precept that a multiplicity of outlets will offer a multiplicity of voices.⁹⁵ Yet, this research found almost no difference between the independent *Scoop* and the corporately owned *New Zealand Herald*. In this case, media ownership and organization-specific routines and values did not dictate coverage. This suggests that diversification of media outlets could prove irrelevant unless fundamental changes occur within the journalism industry as a whole. Given this outcome, the hierarchy of influences on media coverage might be re-examined in the context of singular issues, such as climate change, over a protracted period of time

⁹⁵ B. Bagdikian, *'The media monopoly'*, 6th ed. (Boston: Beacon Press, 2000); Pamela J. Shoemaker, Lucig H. Danielian, and Nancy Brendlinger, 'Deviant acts, risky business and U.S. interests: The newsworthiness of world events', *Journalism Quarterly*, Vol. 68, No. 4, (1991): 781.

Table 1

Typology of Frames	
New evidence or research presented	Announcement of a new government study, a new scientific report, a new environmental group report
Scientific background	General scientific and/or technological background of an issue, such as description of previous research, recapitulation of 'known' results and findings
Consequences	Consequences of global warming – bad or good (e.g. environmental, social, health), worst or best-case scenarios, predictions and projections
Economics	Cost of remedy or solutions to counter global warming effects
Domestic politics	Debate over environmental policy, laws, regulations, political speeches, campaigns, etc.
International relations	Summits, treaties, disputes, UN-sponsored research
Current weather	Abnormal patterns, severe storms, draught
Sensationalism	Extreme predictions
Conflict	Debate about the causes of global warming (i.e. natural occurrence or the result of human activity)
Morality	Solving or remedying climate change result of moral decisions (i.e. civic duty, benefits of social progress)

Table 2

Climate Change in NZ Mainstream & Alternative Press

Frames & Sources

	Publication	Mean	Std. Deviation
New Evidence	Scoop	.46	.813
	The New Zealand Herald	.36	.722
Scientific Background	Scoop	.22	.418
	The New Zealand Herald	.38	.490
Consequences	Scoop	.46	.646
	The New Zealand Herald	.50	.707
Economics	Scoop	.72	.701
	The New Zealand Herald	.62	.725
Domestic Politics	Scoop	.58	.810
	The New Zealand Herald	.64	.875
International Relations	Scoop	.72	.858
	The New Zealand Herald	.64	.851
Sensationalism	Scoop	.22	.507
	The New Zealand Herald	.14	.405
Conflict	Scoop	.06	.240
	The New Zealand Herald	.12	.385
Morality	Scoop	.20	.452
	The New Zealand Herald	.10	.303
Current Weather	Scoop	.14	.351
	The New Zealand Herald	.10	.303
Academic Source	Scoop	.16	.370
	The New Zealand Herald	.22	.418
Resident Citizen Source	Scoop	.02	.141
	The New Zealand Herald	.08	.274
Business/ Industry Source	Scoop	.06	.240
	The New Zealand Herald	.24	.431
Economist Source	Scoop	.00	.000
	The New Zealand Herald	.02	.141
Unnammed Source	Scoop	.06	.240
	The New Zealand Herald	.18	.388
Independent or Unaffiliated Research Source	Scoop	.02	.141
	The New Zealand Herald	.04	.198
Governmental Source	Scoop	.56	.501
	The New Zealand Herald	.56	.501
Environmental Group Source	Scoop	.22	.418
	The New Zealand Herald	.06	.240

